

METHOD FOR IDENTIFYING VALIDATED TARGET AND ASSAY  
COMBINATIONS FOR DRUG DEVELOPMENT

ABSTRACT OF THE DISCLOSURE

The invention comprises methods useful within a larger process for identifying  
5 compounds and/or designing further compounds with activity to produce a desired  
phenotype (for example, growth inhibition) in cells whose target cell component is the  
subject of certain studies to identify such compounds. The invention employs  
constructed cells comprising a regulable gene encoding a biomolecule which modulates  
(inhibits or activates) *in vivo* the function of a target component of the cell which can be  
10 an enzyme for example. The process incorporates methods for identifying  
biomolecules that bind to a chosen target cell component *in vitro*, methods for  
identifying biomolecules that also bind to the chosen target and modulate its function  
intracellularly, causing a phenotypic effect. The intracellular effect of a biomolecule  
can be tested in cell culture, or tested after introduction of the constructed cells into a  
15 host mammal *in vivo*, and methods for identifying compounds that compete with the  
biomolecules for sites on the target in competitive binding assays. Compounds  
identified by the series of steps in this process are candidates for drugs with the desired  
activity on the cell. Targets for which such compounds can be identified are validated  
as being essential to a phenotype of the cell.